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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,336	12/09/2003	Hideto Sugawara	81912.0017	3548

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EXAMINER

LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/731,336	SUGAWARA, HIDETO	
	Examiner	Art Unit	
	Steven Loke	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9, 10, 12-14 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10, 14 and 20 is/are allowed.
- 6) ☒ Claim(s) 9, 12, 13 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/28/06</u> | 6) <input type="checkbox"/> Other: _____ |

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1. Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 10, the parent claim of claim 17, discloses a first embodiment (figs. 1-7) of the invention showing protrusions whose surface includes regions out of stoichiometric compositions. However, the specification never discloses said large protrusions are higher in height than the small protrusions as claimed in claim 17.

2. Claims 9, 12, 13, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9, line 13, the phrase "the surface" is unclear as to what surface is it being referred to. Is it being referred to the side surfaces of the protrusions, the top surfaces of the protrusions or both side and top surfaces of the protrusions?

Claim 12, line 15, the phrase "the surface" is unclear as to what surface is it being referred to. Is it being referred to the surface of the second conductive type nitride based semiconductor layer, the side surfaces of the protrusions, the top surfaces of the protrusions or both side and top surfaces of the protrusions?

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 9, 12, 13, 18 and 19 insofar, as in compliance with 35 USC 112, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hayashi et al. (in the IDS filed on 12/9/03).

In regards to claim 9, Hayashi et al. show all the elements of the claimed invention in fig. 7(f). It is a nitride based semiconductor light-emitting device [102], comprising: a substrate [12]; a first conductive type (p-type) nitride based semiconductor layer [25] formed on the substrate [12]; an active layer [24] (n-InGaN barrier layer/n-InGaN well layer) with a p-n junction (formed between the n-type active layer [24] and the p-type cladding layer [25]) formed on said first conductive type nitride based semiconductor layer [25], said active layer being made of a nitride based semiconductor layer having the p-n junction (formed between the n-type active layer [24] and the p-type cladding layer [25]); a second conductive type (n-type) nitride based semiconductor layer [21] formed on said active layer [24], said second conductive type nitride based semiconductor layer [21] being provided with protrusions, wherein fine recesses (the protrusions formed at the bottom of layer [21] having fine recesses.) (See the attached enlarged fig. 7(f) at the end of the Office Action) (the recesses are formed on the first, third, fifth and sixth protrusions from the right side of the bottom of layer [21]) are formed on side and top surfaces of the protrusions; a first ohmic electrode [11] formed on the surface of said second conductive type nitride based semiconductor layer [21]; and a second ohmic electrode [10] formed on said first conductive type nitride based semiconductor layer [25].

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In regards to claim 13, Hayashi et al. show said protrusions have small and large ones.

In regards to claim 19, Hayashi et al. show said large protrusions (third and sixth protrusions) are wider in width than the small protrusions (first and fifth protrusions).

In regards to claim 12, Hayashi et al. show all the elements of the claimed invention in fig. 7(f). It is a nitride based semiconductor light-emitting device [102], comprising: a substrate [12]; a first conductive type (p-type) nitride based semiconductor layer [25] formed on the substrate [12]; an active layer [24] (n-InGaN barrier layer/n-InGaN well layer) with a p-n junction (formed between the n-type active layer [24] and the p-type cladding layer [25]) formed on said first conductive type nitride based semiconductor layer [25], said active layer being made of a nitride based semiconductor layer having the p-n junction (formed between the n-type active layer [24] and the p-type cladding layer [25]); a second conductive type (n-type) nitride based semiconductor layer [21] formed on said active layer [24], said second conductive type nitride based semiconductor layer [21] being provided with at least two sizes of protrusions (the first to eleventh protrusions formed at the bottom of layer [21] (See the attached enlarged fig. 7(f) at the end of the Office Action) formed on a surface of the second conductive type nitride based semiconductor layer, wherein fine recesses are formed on side and top surfaces of the protrusions; a first ohmic electrode [11] formed on the surface of said second conductive type nitride based semiconductor layer [21]; and a second ohmic electrode [10] formed on said first conductive type nitride based semiconductor layer [25].

In regards to claim 18, Hayashi et al. further disclose said protrusions have small and large ones and said large protrusions (second and third protrusions) are wider in width than the small protrusions (first and eleventh protrusions).

5. Claims 10, 14 and 20 are allowed.

6. Applicant's arguments filed 4/28/06 have been fully considered but they are not persuasive.

It is urged, in page 5 and 6 of the remarks, that although the embodiment shown in Figs. 8A-8D differs from the embodiment of Figs. 1-7 in the manner in which protrusions 18 are formed, a p-type electrode 19 is still formed over contact layer 16 and protrusions 18 (see page 20, line 26 to page 21, line 1), and thus will also result in regions of stoichiometric composition on the protrusions, although the protrusions are configured differently relative to those of Figures 1-7. However, the original specification never discloses the protrusions whose surfaces include regions out of stoichiometric compositions can be apply to the embodiment of figs. 8A-8D. The embodiment of fig. 8D is formed by process steps that are different than that of the embodiment of figs. 1-7. Therefore, the protrusions whose surfaces include regions out of stoichiometric compositions in figs. 1-7 may not be formed in the embodiment of fig. 8D. It is believed that original specification never discloses the claimed subject matters as claimed in claim 17.

It is urged, in pages 7 and 8 of the remarks, that Hayashi never discloses fine recesses on the top and side surfaces of the protrusions. However, it is important to note that the drawing (fig. 7(f)) of Hayashi is also a part of its specification. Since the

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enlarged view of fig. 7(f) of Hayashi shows the fine recesses on the top and side surfaces of the first to eleventh protrusions, Hayashi discloses the claimed subject matters as claimed in claims 9, 12, 13, 18 and 19.

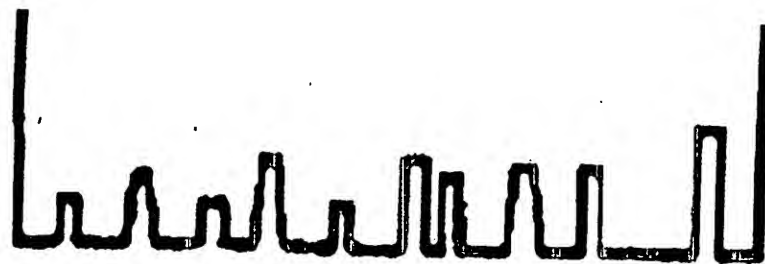
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (571) 272-1657. The examiner can normally be reached on 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

sl
July 9, 2006

Steven Loke
Primary Examiner
Steven Loke



7 (f)

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